



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

RBW6405G02331-3G

Job Sheet 171410



Part No: RBW6405G02331-3G

Job Qty: 1 ea

Part Name: Tail Rotor Upper Conical Ring Puller



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 1/31/18

Job Tracking No:

Due Date: 2/28/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG RBW6405G02331-3G REV:2 IPP REV A 18.01.19 NEW ISSUE RQ VERIFIED BY DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea		2/27/18	0.00	0.00	Start Up Small Fab-4		MLC
100	Small Fab	1 pcs		2/28/18	0.08	0.05	Small Fab-9		MLC
110	QC	1 pcs		2/28/18	0.00	0.00	QC5		38
130	Packaging	1 pcs		2/28/18	0.00	0.00	Packaging3-2		GA MAR 2 8 2018
140	QC21-FG	1 Ea		2/28/18	0.00	0.00	QC21		

Part Op 100 - Assemble

Descriptions: 130 - Identify and Stock

DAS
21
3-80

MAR 2 8 2018

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
RBW6405G02331-3G-03	Frame	1 Ea (1 ea)	90-Start up Operation	
RBW6405G02331-3G-05	Puller	1 Ea (1 ea)	90-Start up Operation	
RBW6405G02331-3G-07	Pin	2 Ea (2 ea)	90-Start up Operation	
RBW6405G02331-3G-09	Tail Rotor Conical Ring Puller Pin	4 Ea (4 ea)	90-Start up Operation	
3896T31	Ferule 1/16 X 3/8" - Aluminum	4 Ea (4 ea)	100-Small Fab	
97633A483	External Retaining Ring, 3-1/4" OD	1 Ea (1 ea)	100-Small Fab	
AN316-4	Hex Head Nuts	4 (4 ea)	100-Small Fab	
AN960-416	Flat Washer Dia 1/4"	1 Ea (1 ea)	100-Small Fab	
CL-2-C	Lanyard Wire	1.6660 ft (1.666 ea)	100-Small Fab	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	RBW6405G02331-3G-03 GA	1	0	0
	RBW6405G02331-3G-05 97	1	0	0
	RBW6405G02331-3G-07 97	2	0	0
	RBW6405G02331-3G-09 GA	4	0	0
100-Small Fab	3896T31	4	274	0
	97633A483 39 3036751	1	20	0
	AN316-4 31322	4	0	0
	AN960-416 51262 0051199F0463P - 04	1	0	0
	CL-2-C	2	514	0

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03
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5041080-7 FM 127832-25

Part Specifications

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Cross tube ☐ Small Fab ☐ Water Jet ☐ Prod Eng ☐ Engineering ☐ Quality ☐ Other ☐																																																				
Date : _____ Step #: _____		(QSI042) Approval _____																																																				
Description Work Order Deviation		Completed By _____ and / Supervisor _____ oval Verification _____ QA Coordinator _____ Approval _____																																																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">Root Cause</th> </tr> </thead> <tbody> <tr> <td style="width: 15%;">Environment</td> <td style="width: 15%;">☐</td> <td style="width: 15%;">No Re-verification</td> <td style="width: 15%;">☐</td> </tr> <tr> <td>Design</td> <td>☐</td> <td>Operator</td> <td>☐</td> </tr> <tr> <td>Doc/Data</td> <td>☐</td> <td>Offset/Setup</td> <td>☐</td> </tr> <tr> <td>Equip/Tooling</td> <td>☐</td> <td>Supplier</td> <td>☐</td> </tr> <tr> <td>Handling/Pre</td> <td>☐</td> <td>Training</td> <td>☐</td> </tr> <tr> <td>Material</td> <td>☐</td> <td>Use for Testing</td> <td>☐</td> </tr> <tr> <td>Internal Transport</td> <td>☐</td> <td>Poor Information</td> <td>☐</td> </tr> <tr> <td>Tribal Knowledge</td> <td>☐</td> <td>Rushing</td> <td>☐</td> </tr> <tr> <td>LOA</td> <td>☐</td> <td>Product Improvement</td> <td>☐</td> </tr> <tr> <td>Substation</td> <td>☐</td> <td>Process Improvement</td> <td>☐</td> </tr> <tr> <td>Past Expiry Date</td> <td>☐</td> <td>Manufacturing Process</td> <td>☐</td> </tr> <tr> <td>Misidentified</td> <td>☐</td> <td>Past Due</td> <td>☐</td> </tr> </tbody> </table>			Root Cause				Environment	☐	No Re-verification	☐	Design	☐	Operator	☐	Doc/Data	☐	Offset/Setup	☐	Equip/Tooling	☐	Supplier	☐	Handling/Pre	☐	Training	☐	Material	☐	Use for Testing	☐	Internal Transport	☐	Poor Information	☐	Tribal Knowledge	☐	Rushing	☐	LOA	☐	Product Improvement	☐	Substation	☐	Process Improvement	☐	Past Expiry Date	☐	Manufacturing Process	☐	Misidentified	☐	Past Due	☐
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Date: 03/28/18
 Inspector: _____
 Revision: 2
 Serial No/Batch: S055718
 Job No: 171410
 Part: RBW6405602331 - 3G
 Container No: S055718

 DART Aerospace Ltd.
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 Hawkesbury, ON K5A 1K7
 CANADA
 TEL: 1 813 632-5200
 Email: sales@dartaero.com
 www.dartaerospace.com

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Specifications could not be found.

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DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

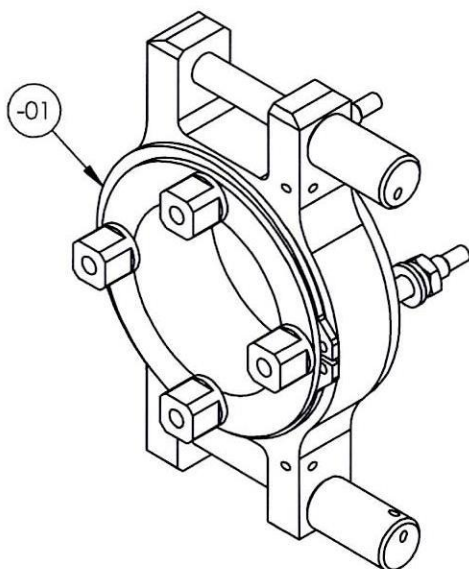
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		-07 ADDED MISSING DIM .12 X 45°. CH'D DIM WAS .63 IS (.63). -13 ADDED MISSING DIM 1/4-28 UNF - 2B.	6/9/2014	DPD	GE
2	17-0032	DELETED NOTE Δ SHEET 1. ADDED NOTE 2 & 3 SHEET 1. -03, -05, -07, -13 CH'D MATERIAL WAS 4140 IS 4140/4142. -03, -05, -07, -09 CH'D FINISH WAS CAD PLATE YELLOW IS ZINC PLATE SPEC. ASTM B633 TYPE I SC2. -03 CH'D ENGRAVE NOTE WAS ENGRAVE T/N "RBW6405G02331-3G". S/N, "MADE IN USA" IS ENGRAVE T/N, S/N, "MADE IN USA". -05 DELETED DIM Ø3.248. CH'D ENGRAVE NOTE WAS ENGRAVE T/N "RBW6405G02331-3G-5". IS ENGRAVE P/N. -07 CH'D DIM WAS (Ø.63) MED. DIAMOND KNURL IS Ø.63 MEDIUM KNURL. -09 CH'D DWG. TOLERANCE WAS .XXX ±.005, .XX ±.01 IS .XXX ±.010, .XX ±.03. -11 CH'D B/O INFO WAS 1/4-28 UNF x 3-1/8 MCMASTER-CARR #92580A107 IS 1/4-28 UNF - 2A (MCMASTER-CARR #92580A107) MODIFIED. CH'D DIM WAS 1/4-28 UNF -2A IS (1/4-28 UNF -2A). -15 CH'D DESCRIPTION WAS JAM NUT IS THIN HEX NUT. -23 CH'D B/O INFO WAS Ø1/16 WIRE MCMASTER-CARR #3896T31 IS Ø1/16 X 3/8 (MCMASTER-CARR #3896T31). -03, -05, -13 ADDED HEAT TREAT RC 28-34	1/26/2017	RJC	SM



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WITHOUT NOTICE
WORK ORDER

NO. 171410 MCG
180131

NOTE:

- REF. AGUSTA T/N 3G6405G02331.
- PART OF KIT RBW6005G00231-3G.

ASSY QTY	ASSY QTY	B/O	Part #	UNIT QTY	Description	Material	B/O INFORMATION OR SPECIFICATIONS	PG.	DART AEROSPACE		
	X		-01	1	T/R UPPER CONICAL RING PULLER			2	TITLE T/R UPPER CONICAL RING PULLER		
1			-03		FRAME	4140/4142		3			
1			-05		PULLER	4140/4142		4	DWG NO. RBW6405G02331-3G		
2			-07		PIN	4140/4142		5			
X	4		-09		SCREW WELDMENT			6	REV 2		
1			-11		ALL THREAD	STEEL, GRADE B7	1/4-28 UNF -2A (MCMASTER-CARR #92580A107) MODIFIED	7			
1			-13		HEAD	4140/4142		8	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .005 FRACTIONS ± 1/8 .XX ± .01 ANGLES ± 5° .X ± .1 SURFACES = 125/		
	4	B/O	-15		THIN HEX NUT	STEEL	AN316-4	2			
	4	B/O	-17		WASHER	STEEL	AN960-416	2	1. BREAK ALL SHARP EDGES .015 x 45° OR .015R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING 3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009		
	1	B/O	-19		EXTERNAL RETAINING RING	STEEL	3-1/4 SHAFT (MCMASTER-CARR #97633A483)	2			
	2	B/O	-21		LANYARD CABLE	COATED STEEL	Ø1/16 X 8 (CARR LANE #CL-2-C)	2	USED ON MODEL AW139		
	4	B/O	-23		FERRULE	ALUMINUM	Ø1/16 X 3/8 (MCMASTER-CARR #3896T31)	2			
ASSY -09	ASSY -01								SCALE 1:2 DATE 3/25/2010 SHEET 1 OF 9		

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



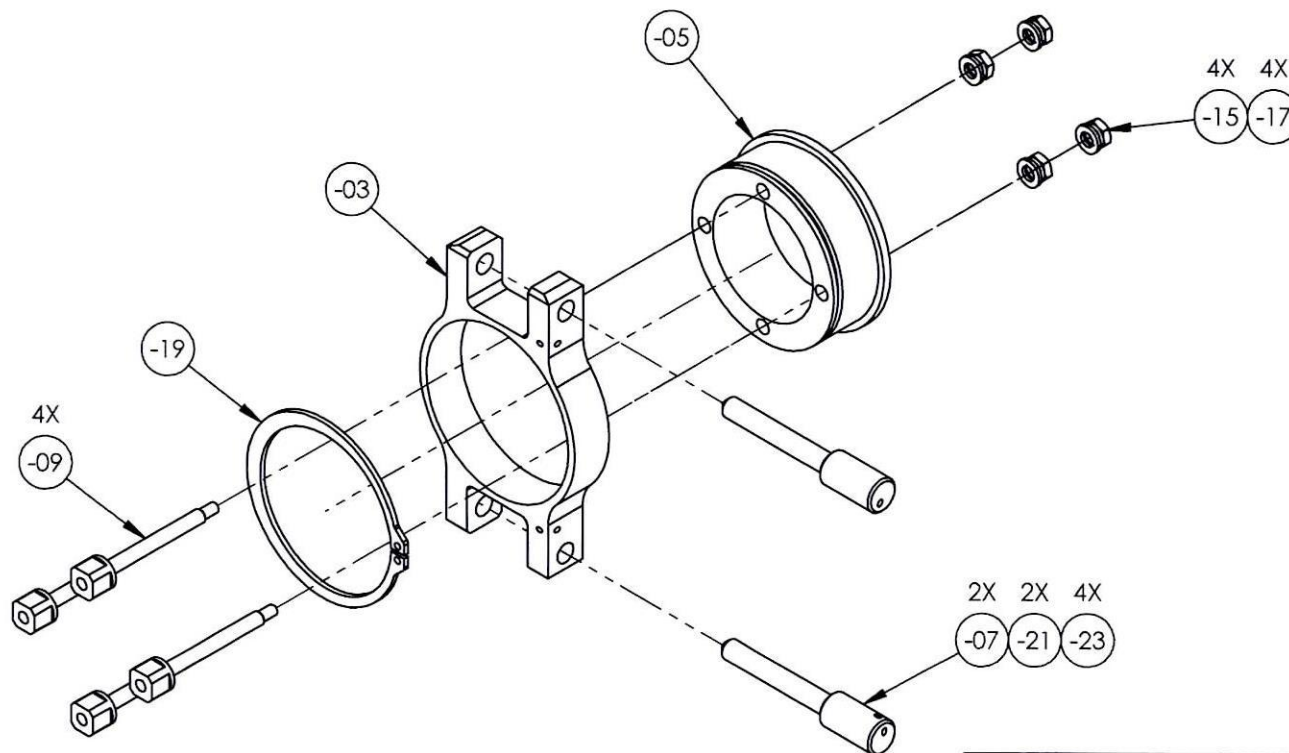
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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition		Completed By	
REWORK RETURN TO ENGINEERING FOR INVESTIGATION SUBJECT TO APPROVAL BY QA				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐				
OTHER : ☐					

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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED



(01)

T/R UPPER CONICAL RING PULLER

DART AEROSPACE	
TITLE T/R UPPER CONICAL RING PULLER	
DWG NO. RBW6405G02331-3G-01	REV 2
MAT'L AL 7075-T6	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
HEAT TREAT T6	.XXX ± .005 FRACTIONS ± 1/8
FINISH ANODIZED	.XX ± .01 ANGLES ± 5°
SPEC ASME Y14.5M-2009	.X ± .1 SURFACES = 125/✓
DRAWN BY: CLOUGH	1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
CHECKED: DUERFELDT	2. DIMENSIONAL LIMITS APPLY AFTER PLATING
OPPS APPR: ANDERSON	3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009
QA APPR: LINDSAY	USED ON MODEL AW139
APPROVED: MACKOVJAK	
SCALE 1:3	DATE 3/25/2010
SHEET 2 OF 9	

QA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																											
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Misidentified ☐	Past Due ☐																																																														